AMENDMENTS TO THE CLAIMS

This listing of claims replaces all previous versions and listings of claims in this application.

Claim Listing:

1.   (Original) A track-locking method for an optical disk drive, comprising the steps of: detecting a tracking error (TE) signal; dividing a time period that a pickup head of the optical disk drive jumps from one track to another track into a first period, a second period, a third period and a zero period; presetting extreme values of a reshaped tracking error (TE') signal in the first, second and third periods; reshaping the TE signal in the first period based on the preset extreme value of the TE' signal in the first period and a peak value of the TE signal, so as to form the TE' signal in the first period; establishing a line connecting the extreme values of the TE' signal in the first period and the second period as the TE' signal in the second period; and establishing a line connecting the extreme values of the TE' signal in the second period and the third period to reshape the TE' signal in the third period.

2.   (Original) The track-locking method for an optical disk drive in accordance with Claim 1, wherein the TE' signal in the first period is derived from the formula: $TE' = \dfrac{y1 \times TE}{Tx}$, wherein Tx is the peak value of the TE signal, and y1 is the extreme value of the TE' signal in the first period.

3.   (Original) The track-locking method for an optical disk drive in accordance with Claim 1, wherein the TE' signal in the second period is derived from the formula: $TE' = y2 - \dfrac{y2 - y1}{Tx} \times TE$, wherein Tx is the peak value of the TE signal, y1 is the extreme value of the TE' signal in the first period, and y2 is the extreme value of the TE' signal in the second period.

4.   (Original) The track-locking method for an optical disk drive in accordance with Claim 1, wherein the TE' signal in the third period is derived from the formula:

$TE' = y2 + \dfrac{y3 - y2}{Tx} \times TE$, wherein Tx is the peak value of the TE signal, y2 is the extreme value

of the TE' signal in the second period, and y3 is the extreme value of the TE' signal in the third

period.

5.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 1, further comprising the step of generating a radio frequency ripple (RFRP) signal and

determining that the phase of the TE signal precedes or lags behind that of the RFRP signal, so

as to identify whether the pickup head returns.

6.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 1, further comprising the step of differentiating the TE signal to determine whether the

pickup head returns.

7.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 1, wherein the step of reshaping the TE signal will be performed if the TE signal exceeds

a threshold value.

8.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 1, further comprising the step of adjusting the offset of the TE signal based on the crest

and trough values of the TE signal.

9.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 1, further comprising the step of detecting a seek time of the pickup head.

10.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 9, wherein the TE' signal in the second period is derived from the formula:

$TE' = y1 + \dfrac{4(y2 - y1)}{x} \times t$, wherein y1 and y2 are the extreme values of the first and second

periods respectively, x is the seek time, and t is the time counted from the time when the pickup

head enters the second period.

11.   (Original) The track-locking method for an optical disk drive in accordance with

Claim 10, wherein the TE' signal appears as a horizontal region when t is larger than x/4 and the returning of the pickup head has not been detected.

12.   (Original) The track-locking method for an optical disk drive in accordance with Claim 10, wherein the level of the TE' signal is equivalent to y2 when t is larger than x/4 and the returning of the pickup head has not been detected.

13.   (Original) The track-locking method for an optical disk drive in accordance with Claim 10, wherein the TE' signal in the second period further comprises a horizontal region if the returning of the pickup head occurs in the second period but has not been detected.

14.   (Original) The track-locking method for an optical disk drive in accordance with Claim 13, wherein the level of the horizontal region is equivalent to y2.

15.   (Original) The tracking-locking method for an optical disk drive in accordance with Claim 10, wherein the time t is counted decreasingly in the next second period after the pickup head returns if the returning of the pickup head occurs and has been detected in the second period.

16.   (Original) The tracking-locking method for an optical disk drive in accordance with Claim 10, wherein the time t is counted decreasingly in the next second period after the pickup head returns if the pickup head returns in the third period.

17.   (Original) The tracking-locking method for an optical disk drive in accordance with Claim 16, wherein the time t is decreasingly counted from x/4 to 0.

18.   (Original) The track-locking method for an optical disk drive in accordance with Claim 9, wherein the TE' signal in the third period is derived from the formula: $TE' = y2 + \dfrac{4(y3 - y2)}{x} \times t$, wherein x is the seek time, t is the time counted from the time when the pickup head enters the third period, and y2 and y3 are the extreme values of the TE' signal in the second and third periods respectively.

19.   (Original) The track-locking method for an optical disk drive in accordance with Claim 18, wherein the TE' signal appears as a horizontal region when t is larger than x/4 and the

returning of the pickup head has not been detected.

20.   (Original) The track-locking method for an optical disk drive in accordance with Claim 19, wherein the level of the horizontal region is equivalent to y3.

21.   (Original) The track-locking method for an optical disk drive in accordance with Claim 18, wherein the TE' signal in the third period further comprises a horizontal region if the returning of the pickup head occurs in the third period but has not been detected.

22.   (Original) The track-locking method for an optical disk drive in accordance with Claim 21, wherein the level of the horizontal region is equivalent to y3.

23.   (Original) The track-locking method for an optical disk drive in accordance with Claim 18, wherein the time t is counted decreasingly in the next third period after the pickup head returns if the returning of the pickup head occurs and has been detected in the third period.

24.   (Original) The track-locking method for an optical disk drive in accordance with Claim 18, further comprising the step of using the TE signal in the zero period as the TE' signal in the zero period.

25.   (Original) The tracking-locking method for an optical disk drive in accordance with Claim 24, wherein the time t is counted decreasingly in the next third period after the pickup head returns if the pickup head returns in the zero period of the next track and goes back to the original track.

26.   (Original) The track-locking method for an optical disk drive in accordance with Claim 25, wherein the time t is decreasingly counted from x/4 to 0.

27.   (Original) The track-locking method for an optical disk drive in accordance with Claim 24, wherein the period after the pickup head returns is the next first period if the pickup head returns in the zero period of the next track and the track-locking is targeted at the next track.

    Claims 28.-32:   Canceled.